

4. What distinguishes Plat. from Aristotelian thinking I

The Role of Mathematics in Physics

The Nature of Mathematics

1. Generative v. Axiomatic method

Natural numbers
→ integers → rationals
→ reals

Russell: Deliberately chose our honest tool

Also complex numbers
functions
geometry
finite classes

Concrete realizations of abstract structures

2. Intentional w. Extensional axiomatics

Point mass
(categorical)

Categorical
Vector
Space
(Algebraic space)
(Non-algebraic)

non-Categorical
Groups
Linear ordering
Fields etc.

group with
free multiplication table
may have different

Concrete realization

Space-eligible fields
Space-realizable spaces
in L_2 space \rightarrow Natur numbers
~~in C_2 space \times~~ \rightarrow Natur numbers

3. Mathematical models are concrete realizations
or categorical abstract structures

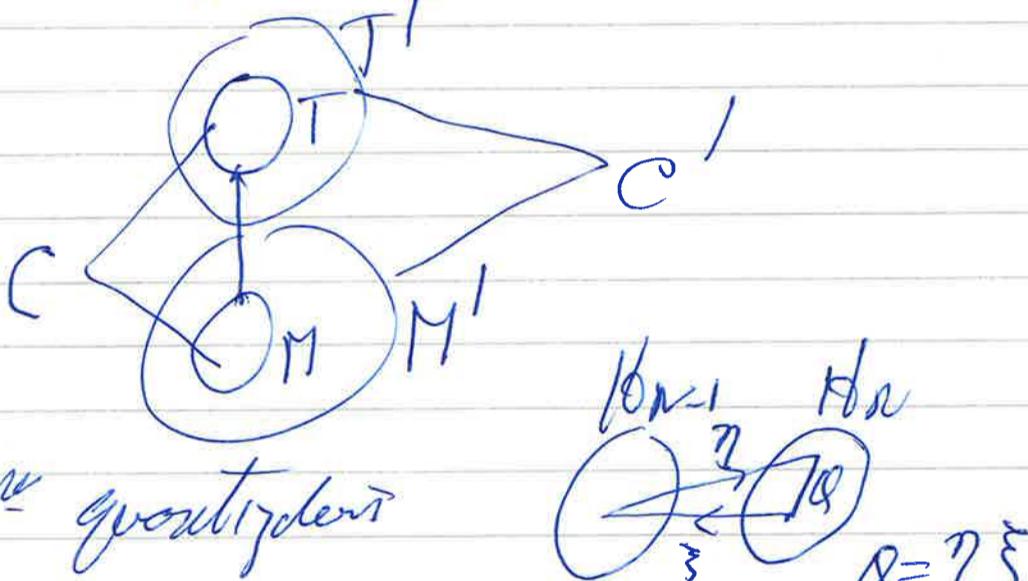
D) ~~Not place~~ ~~overlaid~~
 4.) What distinguishes Notated structures
 from Arbitrary unnotated structures.
 determine to defⁿ language physical
 theory needed to be "notated"

M is set such Concrete calculated in
 terms of Notated sys - concluded
 intended per needs.

5. Use of Non-Catalogued Structures
 in groups - economy of not
 repeating same effort in new
 different contexts.

6. Different ways of formulating a theory
 in terms of Simpler Structures

Ex:



Sx S. C) 2nd quantized

$$\begin{matrix} H_{n-1} & H_n \\ J_3 & J_4 \end{matrix} \quad \theta = 75^\circ$$

a) Analyse S-Notes and nos collected
 in Complex Plane.

c) Model every state of data as
 the free theory.

6a) Diagram for 2nd quantization example.

7. Heuristic role of Simpler Structures
 w.r.t Q.F.T
 Heⁿ they & position
 large classes of them.

8) Why is Moltke's account?

Does not quantitatively explain all the world (but can be measured) of Spheres. An isolated, geometric situation does not explain more sophisticated examples. Hilbert Space, QM. Ramanujan's Geometry, G.R.

Now - follows answer to Moltke's first to be treated - classical mechanics v. nuclear physics

9) Confusion gap - Empirical. Moltke's opponents worked in terms of successful predictions

10) The Role of the Computer - the problem has not really gone away

11) Report on Moltke's: Description from modern aspect approach. In Spheres' position

12) Similar in treated physics & the most recent - Divergence of solution but looks against sloppiness or inconsistent reasoning.

13) The Nature of Idealization:-
Adding of ideal elements - set up abstract - of Hilbert's
Carry on nature of formalist approach to Moltke's - of simpler structures discussed above.

ch. Moltke's
Spheres

14.) Norton-Robertson : Solder Age of
 Age of Decade - Rots
 d'espousent n'abstient in 'en onto'
 repts 3 terms.

Norton
 15.) Antrochios between physico &
 Mathematics

Kopfer ellipses
 Hilbert Space - CH
 Researcher planetary - CP

16.) ~~Confusion~~ The use of mathematical
 types to predict future events
 like ground state of Helium
 low shift
 another part of data
 (10 significant types)
 How is this possible ???

Well, and the further mod 9
 Stern' 9 will tell and
 look forward to comment and
 discussion from all addressed.

Aesthetics

Galileo : All ears, tongues and noses
more rounded, sharper, numbers &
means used remain - The Assayer

The book of Nature is written in
mathematical characters - The Assayer.

Russell The power (Aesthetic) has the
ecology of theft over honest tool